

REMARKS

Status of the Claims

Claims 1 and 4-9 are pending. Claims 4-5 have been withdrawn from further consideration. No new matter has been added. Claims 1 and 9 have been amended in order to address some issues identified by the Examiner.

At the outset, the present application is believed to be in condition for allowance. Entry of the accompanying amendment is requested under 37 C.F.R. §1.116, as the amendment does not raise any new issues which would require further search and/or consideration by the Examiner. Furthermore, Applicants request entry of this amendment in order to place the claims in better form for consideration on Appeal.

In view of the amendments and remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 112, 2nd Paragraph

Claim 9 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. This rejection is respectfully traversed.

Claims 1 and 9 have been amended to address the issues identified by the Examiner. As such, this rejection is moot.

Reconsideration and withdrawal of this rejection are respectfully requested.

Issues under 35 U.S.C. § 112, 1st Paragraph (Written Description)

Claim 9 is rejected under 35 U.S.C. § 112, first paragraph, as allegedly describing new matter. This rejection is respectfully traversed.

The Examiner states that the specification fails to support that the different hydrophilic regions are contacted twice.

As noted above, claims 1 and 9 have been amended in order to address the issues identified by the Examiner. Accordingly, this rejection is moot.

Reconsideration and withdrawal of this rejection are respectfully requested.

Issues under 35 U.S.C. § 103(a)

Claims 1 and 6-9 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over Thurnheer *et al.*, *Journal of Microbiological Methods*, 2001, 44:39-47 (“Thurnheer”) in combination with U.S. Patent No. 7,498,176 to McCormick *et al.* (“McCormick”) and Grant Boekel Laboratory Equipment, June 2001, page 16. This rejection is respectfully traversed.

The Examiner asserts that Thurnheer teaches all of the elements of the instant claims except for forming a slide with hydrophobic regions and hydrophilic regions and closing the vessel. The Examiner relies on McCormick to cure the deficiencies of Thurnheer, and argues that McCormick teaches forming a microarray comprising a plurality of DNA or RNA in a plurality of hydrophilic subarrays surrounded by a hydrophobic barrier. Grant is cited for teaching that the vessel is closed.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). “[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). A patent composed of several elements is not proved obvious merely by demonstrating that each of

its elements was, independently, known in the prior art. *KSR Int'l Co. v Teleflex Inc.*, 82 USPQ 2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* The Supreme Court of the United States has recently held that the "teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Applicants respectfully submit that a slide formed with hydrophobic and hydrophilic regions as described in McCormick could not be used with the Fluorescence *in situ* hybridization (FISH) method described in Thurnheer without changing the principle of operation of Thurnheer.

Thurnheer describes a hybridization method wherein probes (cells) are "spotted" and immobilized onto a glass slide, *see* page 40, right column, paragraph 2 of Thurnheer. McCormick describes a method wherein probes are synthesized directly on a slide after which hydrophobic barriers are formed. The hydrophobic barriers in McCormick are constructed by first synthesizing the coupling of an NPPOC protected phosphoramidite everywhere on the array. The NPPOC is a photoprotecting group. The probes of McCormick are synthesized in their grid and the hydrophobic areas are left unexposed to light (therefore protected) until the completion of synthesis, when the hydrophobic areas are de-protected (by light) and trityl-phosphoramidite (a compound providing hydrophobicity) is then coupled only in these regions, *see* column 4, paragraph 2 of McCormick. Accordingly, hydrophobic regions are formed on McCormick's slides after the synthesis of the nucleic acids.

In view of the above, it would not be possible to spot and immobilize the probes of Thurnheer onto the hydrophilic regions surrounded by hydrophobic regions in McCormick's slide. The probes of Thurnheer cannot be spotted onto the hydrophobic regions since the hydrophobic regions are not formed on McCormick's slide until after the probes are immobilized. Further, the probes in McCormick's slide are directly synthesized on the slide and not "spotted" as described in Thurnheer. Moreover, the probes of Thurnheer are cells, which cannot be synthesized like McCormick's nucleic acids.

Accordingly, the combination of references suggested by the Examiner would require a substantial reconstruction and redesign of the probes shown in the primary Thurnheer reference, as well as change the basic principle under which McCormick's FISH hybridization method was designed to operate, *i.e.*, the cells of Thurnheer cannot be spotted in the hydrophilic regions surrounded by the hydrophobic regions of McCormick.

Applicants thus submit that the cited references are not combinable, and the Examiner has failed to establish a *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Linda T. Parker, PhD, Registration No. 46,046, at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: OCT 14 2011 Respectfully submitted,

By Marc S. Weiner #601,158
f Marc S. Weiner
Registration No.: 32181
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747
703-205-8000